

CLAIMS

What is claimed is:

1. A motion picture film projector comprising:

a lamp house section comprising a lamp bulb and a reflector;

a head section located in front of the lamp house section, the head section comprising a shutter, an aperture, and a film movement system; and

an optical member located proximate a junction between the lamp house section and the head section, wherein the optical member comprises infrared filtering coatings on both a front side and a rear side of the optical member.

2. A motion picture film projector as in claim 1 wherein the lamp house further comprises a lamp bulb anode adaptor, attached to a lamp bulb anode of the lamp house, which is sized and shaped to space a rear end of the lamp bulb forward from the lamp bulb anode and thereby allow the lamp bulb to be located closer to a front end of the lamp house.

3. A motion picture film projector as in claim 2 wherein the lamp house further comprises a cantilevered front cathode lamp bulb holder which extends in a forward direction and is adapted to be deflected to align a front end of the lamp bulb.

4. A motion picture film projector as in claim 1 wherein the shutter comprises a shutter of less than about 75°.

5. A motion picture film projector as in claim 4 wherein the film movement system comprises a high speed intermittent.

6. A motion picture film projector as in claim 1 wherein the head section comprises two lens collar at a front end of the head section, and wherein at least one of the lens collars is an eccentric collar which is adapted to be rotated to align a flat wide screen image on screen and correct for a vertically off-center aperture in the head section.

7. A motion picture film projector as in claim 1 wherein the lamp bulb is aligned generally horizontally, wherein the reflector has a rear aperture with a portion of the lamp bulb extending therethrough, wherein the rear aperture is larger than a center outer diameter of the lamp bulb.

8. A motion picture film projector as in claim 7 wherein the lamp bulb and the reflector are sized and shaped such that an operator looking rearward from a front side of the lamp bulb and reflector, and looking generally coaxially relative to a center longitudinal axis of the lamp bulb, can see a general ring shaped gap between the reflector and the lamp bulb when the lamp bulb is aligned relative to the reflector.

9. A motion picture film projector lamp house assembly comprising:

a lamp bulb aligned generally horizontally;

a reflector having a rear aperture with a portion of the lamp bulb extending therethrough, wherein the

rear aperture is larger than a center outer diameter of the lamp bulb,

wherein the lamp bulb and the reflector are sized and shaped such that an operator looking rearward from a front side of the lamp bulb and reflector, and looking generally coaxially relative to a center longitudinal axis of the lamp bulb, can see a general ring shaped gap between the reflector and the lamp bulb when the lamp bulb is aligned relative to the reflector.

10. A motion picture film projector lamp house assembly as in claim 9 further comprising an infrared filter at a front end of the lamp house having infrared coatings on both a front side and a rear side of the filter.

11. A motion picture film projector lamp house assembly as in claim 9 further comprises a lamp bulb anode adaptor, attached to a lamp bulb anode of the lamp house, which is sized and shaped to space a rear end of the lamp bulb forward from the lamp bulb anode and thereby allow the lamp bulb to be located closer to a front end of the lamp house.

12. A motion picture film projector lamp house assembly as in claim 9 further comprising a cantilevered front cathode lamp bulb holder which extends in a forward direction and is adapted to be deflected to align a front end of the lamp bulb.

13. A motion picture film projector lamp house assembly as in claim 9

14. A motion picture film projector retrofit kit comprising:

a reflector;

a reflector mounting system for mounting the reflector to a reflector holder of a lamp house for replacing an old reflector to be replaced;

a lamp bulb for replacing an old lamp bulb to be replaced; and

a lamp bulb anode adaptor which is sized and shaped to be attached to a lamp bulb anode of the lamp house and adapted to allow a rear end of the lamp bulb to be mounted to the adaptor, wherein the adaptor is adapted to space the rear end of the lamp bulb forward from the lamp bulb anode and thereby allow the lamp bulb to be located closer to a front end of the lamp house than the old lamp bulb being replaced.

15. A motion picture film projector retrofit kit as in claim 14 wherein the reflector comprises a glass reflector for replacing a metal old reflector.

16. A motion picture film projector retrofit kit as in claim 14 further comprising an infrared filter having infrared filter coatings on both a front side and a rear side of the filter.

17. A motion picture film projector retrofit kit as in claim 14 further comprising a shutter comprising a shutter angle of less than about 75°.

18. A motion picture film projector retrofit kit as in claim 17 further comprising a high speed intermittent.

19. A motion picture film projector retrofit kit as in claim 14 further comprising a lamp house section cooling fan.

20. A method for aligning a lamp bulb with a reflector in a motion picture film projector comprising:

providing the reflector with a rear hole;

positioning the lamp bulb to pass through the rear hole of the reflector;

visually observing from a front end of the lamp bulb a general ring shaped gap between a center outer diameter of the lamp bulb located in front of the rear hole and an inner perimeter of the reflector at the rear hole; and

adjustably moving a front end of the lamp bulb to make the gap substantially uniform and thereby align the lamp bulb with the reflector.